

Adiantum argutum, an Unrecognized Species of the *A. latifolium* Group

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ABSTRACT.—The present paper distinguishes *A. argutum*, an unrecognized but widespread species from South America, from the related *A. latifolium*, and designates a lectotype for *A. argutum*.

Several pinnate or bipinnate *Adiantum* species have an indument like that of the *A. serratodentatum* group, but differ in having fewer, larger, less dimidiate pinnules and thin, very long-creeping rhizomes. Among the species of this group are *A. argutum* Splitg., *A. incertum* Lindm., which is based on *Lindman Regnell Exped. I. A2083* (S not seen; isotypes B, GH) from Paraguay, the widespread *A. latifolium* Lam., and *A. viviesii* Proctor, which is based on *Proctor 41389* (US; isotypes IJ, SJ) from Puerto Rico. *Adiantum glaziovii* Baker, which is based on *Glaziou 13345* (K, isotype US) from Rio de Janeiro, Brazil, is a synonym of *A. latifolium*. The early, unplaced name *A. elatum* Desv., which is based on a Brazilian specimen from the Herb. Dombey (P-Herb. Juss. Cat. 1421 not seen Morton photo 3153) will likely displace one of the later named species found in Brazil. The specimen was said by Morton to have almost glabrous segments; it needs to be examined critically.

Adiantum argutum Splitgerber, Tijdschr. voor Natuurl. Gesch. en Physiol. [Leiden] 7: 427. 1840. Figs. 1, 2.

Lectotype (chosen here): “in sylvis montosis Surin. prope Bleauwe Berg,” Surinam, May 1838, *Splitgerber 891* (L not seen, photo US). Other syntype: *idem, id.*, *Splitgerber 290* (L not seen, photo US).

Adiantum fovearum Raddi var. *reductum* Jenm. Ferns Br. W. Ind. & Guiana 87. 1899. TYPE: Not clearly stated, but presumably Guyana, *Jenman* (NY? not seen).

Splitgerber (1840) described *A. argutum* based on material he collected in Surinam. The author did not mention any specimens in the protologue, only the locality. Original materials were found by Morton at Leiden (Morton photos 193 and 194, both US), and they may be considered the syntypes of Splitgerber's taxon. The lectotype selected here (*Splitberger 891*) has an original label, handwritten by the author with the same information he published with the



FIG. 1. Range of *Adiantum argutum* Splitg.

original description. The photograph of the other syntype (*Splitgerber 290*) resembles *A. latifolium* Lam., although we can not place it there with certainty.

According to Splitgerber (1840), *A. argutum* has a long-creeping rhizome; the laminae are lustrous adaxially and have 3 or 4 pinna pairs, acuminate pinnules, a subrhombic terminal pinnule, reduced and flabellate basal pinnules, sparse, minute setiform scales abaxially, and oblong sori. In fact, these characters distinguish this species from all others closely related to it. Other important features to recognize *A. argutum* are the distant fronds and the idioblasts on the abaxial surface of the pinnules.

Unfortunately, over the years, the Splitgerber species was included within the concept of *A. latifolium* by Vareschi (1969, p. 734), Kramer (1978, p. 91), Tryon and Stolze (1989, p. 66), and Smith (1995, p. 259). In other cases, the

name was synonymized under this species, by Posthumus (1928, p. 105), Lellinger (1989, p. 148), and Cremers and Hoff (1990, p. 19).

Adiantum argutum demonstrates its close affinity to *A. latifolium* mainly in its slender, long-creeping rhizome, 2-pinnate fronds, and stipe and rachis covered by deltate to lanceolate scales with a pectinate base. However, *A. latifolium* differs by its smaller, obtuse to subacute pinnules with a roundish apex that are abaxially glaucous, glabrous, and without idioblasts.

Adiantum incertum Lindm. differs from *A. argutum* and *A. latifolium* in having the scales on the abaxial surface of the pinnules hairlike and with a few basal processes, rather than having such scales with a pectinate base or totally lacking scales. In addition, it is a species restricted to Paraguay and extra-Amazonian Brazil: Goiás (Maurilândia, Rio dos Bois, *Hatschbach* 34271, MBM, MO, NY, UC), Mato Grosso (Santa Terezinha, 21 km SW of Portal da Amazônia, *Thomas et al.* 4334, NY, US), São Paulo (São Carlos, 9 km NNE of the BR Station at Santa Eudóxia, *Eiten & Eiten* 3488, US), and Paraná (Foz do Iguaçu, Parque Nacional das Cataratas, *Hatschbach* 23171, HB, MBM, MO, UC, UPCB).

Adiantum obliquum Willd., although its fronds look much like those of *A. argutum*, can be distinguished by its short-creeping rhizomes, approximate and usually 1-pinnate fronds, and pinnules with conspicuous idioblasts on both surfaces. It may be more related to *A. lucidum* Cav. and perhaps to *A. petiolatum* Desv., with which it hybridizes. These three species may form a separate group.

Adiantum argutum has a more restricted area of distribution than its closest relative *A. latifolium*. It occurs in northern South America (Colombia to French Guiana) and in the Amazonian regions of Peru, Bolivia, and Brazil. It grows in primary and secondary forests, on dark red lateritic clay soils, from 50 to 1000 m elevation.

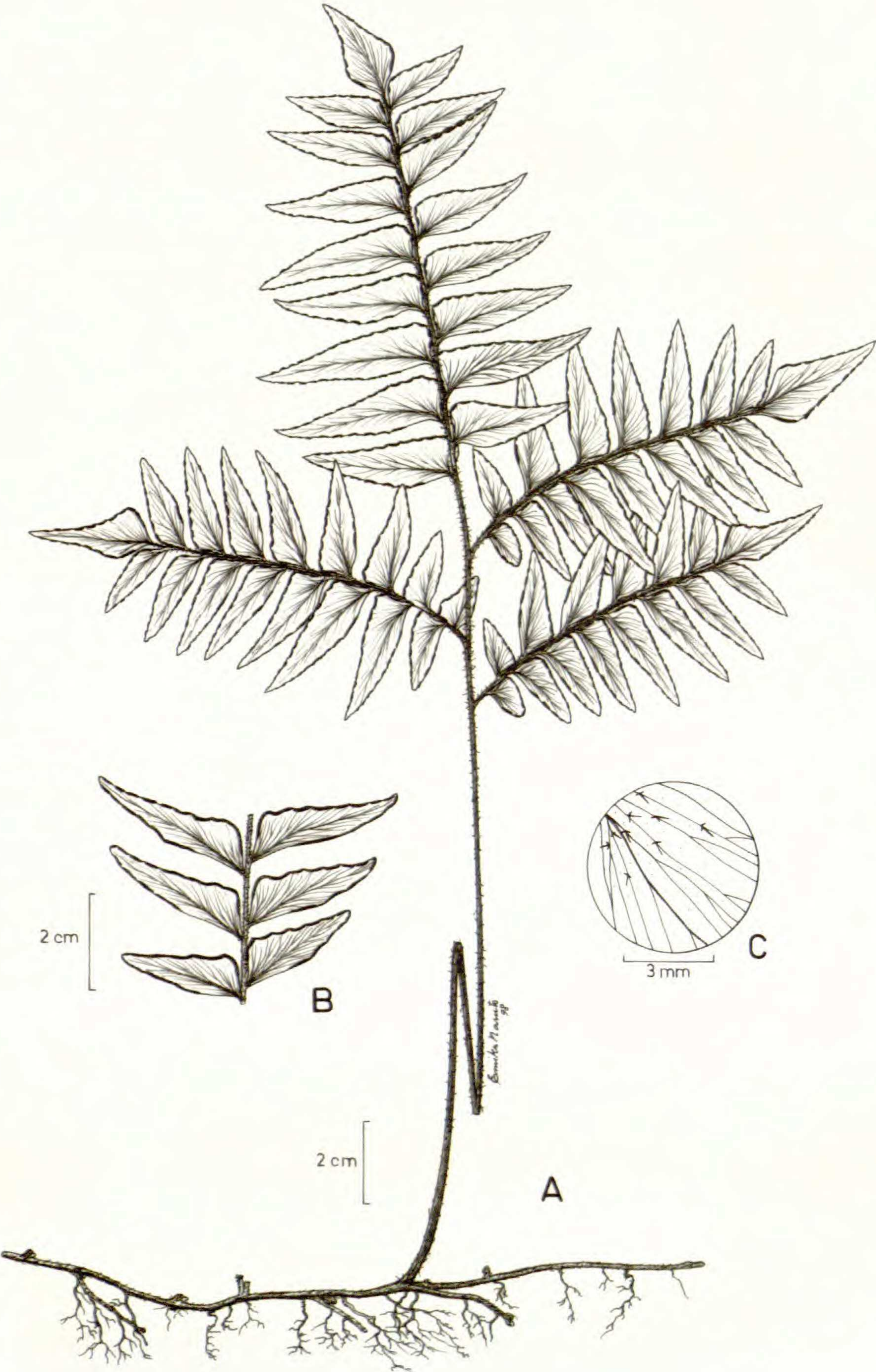
Representative specimens of *A. argutum* studied:

COLOMBIA: **Meta**: Sierra de La Macarena, Caño Entrada, *Philipson & Idrobo* 1748 (US); Villavicencio, *Pennell* 1607 (GH). **Boyacá**: Los Llanos, *Haught* 2833 and 2844 (both GH). **Vichada**: San José de Ocumé: near Río Vichada at Botomi, ca. 14 km NW, *Hermann* 11107 (US); NE de Pto. Inírida, 3°58'N, 67°50'W, *Churchill et al.* 17748 (NY).

VENEZUELA: **Bolívar**: La Tomasa, *Williams* 1295 (US); Río Paragua, Isla El Casabe, *Killip* 37301 (US); Salto Alta, Alto Orinoco, *Croizat* 486 (NY); Dtto. Sifontes, Concesión Minera Oro Uno, 7 km NW of la Clarita, 6°13'N, 61°27'W, *Aymard et al.* 3976 (NY); Sierra Imataca betw Río La Reforma and Puerto Rico, N of El Palmar, *Steyermark* 88012 (US). **Amazonas**: Around the margin of the Río Orinoco above Tamatama, *Williams* 15199 (GH); Cuenca del Río Manapiare, 5°5'N, 66°03'W, *Huber* 435 (NY). **Delta Amacuro**: Río Cuyubini, Cerro de la Paloma, *Steyermark* 87649 (NY). **Mérida**: Near border Río Grande de Toro, 61°44'W, 80°4'N, *Breteler* 3781 (US).

TRINIDAD: *Fendler* 2 (NY).

GUYANA: **Cuyuni-Mazaruni**: 8 km N of Bartica on W bank of Essequibo River, 06°29'N, 58°38'W, *Henkel & Chin* 297 (US). **U. Takutu-U. Essequibo**:



Rupununi area, Surama Village, 04°08'N, 59°04'W, *Acevedo et al.* P3297 (US); Marudi River, 02°11'N, 59°11'W, *Henkel et al.* 2902 (NY), 3032 (US); Kuyuwini River, 02°11'N, 59°11'W, *Henkel et al.* 3022 (US); NW Kanuku Mts., 3°21'N, 59°30'W, *Hoffman & Foster* 3510 (US); Rupununi River, *Jansen-Jacobs et al.* 4207 (US). **Potaro-Siparuni:** On 0.5 km island in Essequibo River, 1 km S of Fairview, 4°40'N, 58°40'W, *McDowell* 3371 (US); Iwokrama Mts., Annai-Karupukari Rd., 04°19'N, 58°51'W, *Hoffman et al.* 1409 (US); River Isherton, 2°20'N, *Smith* 2432 (GH, NY). **Barima-Waini:** Head of Barima River, Ayamba Falls, 4.5 mi W of Eclipse Falls, ca. 10 km W of Arakaka, 7°39'N, 60°09', *Pipoly & Lall* 8200 (NY); Head of Barima River, NW of Kariako River, 7°30'N, 60°35'W, *McDowell* 4393 (NY); Labbakaka Creek, Tiger Creek, *Sandwith* 1209 (K, NY).

SURINAM: **Haut Litany:** Basin du Litany, 2°31'N, 54°45'W, *Granville et al.* 12040 (US). **Nickerie:** Area of Kabalebo Dam project, *Lindeman & Roon* 884 (US); Area of Kabalebo Dam project, 4°–5°N, 57°30'–58°W, *Lindeman et al.* 165 and 343 (both NY); Sectie O, along railroad, vic. Km. 70, *Maguire & Stahel* 23605 (GH, NY). **Brokopondo:** 2.4 km S of village Gansee, *Donselaar* 1189 and 1276 (both GH); Zuid River, 3°10'–3°20'N, 56°29'–56°49'W, Kayser Airstrip, 45 km above the confluence with Lucie River, *Irwin et al.* 57697 (NY).

FRENCH GUIANA: Cayenne, Inini River, 3°28'N, 52°36'30"W, *Cremers et al.* 8781 (US); Camp Eugene, Basin du Sinnamary, 4°51'S, 53°4'W, *Cremers & Granville* 13727 (NY); Gobaya Soula, Basin du Maroni, 53°58'W, 3°37'S, *Cremers et al.* 10125 (US); Saoul, 3°37'N, 53°12'W and vicinity, Route de Bélizon, N of Eaux Claires, *Heald & Yahr* 56 and 65 (both NY); Comté., degrad auprès de Crique Martineau, *Oldeman* 1426 (NY); Mt. Balbao, Secteur Sud, 3°35'N, 53°20'W, *Granville et al.* 8958 (NY).

PERU: **Madre de Dios:** Near the confluence of Río Tambopata and Río La Torre, 39 km SW of Puerto Maldonado, 12°50'S, 69°20'W, *Smith & Condor* 1114 (US) and 1363 (NY); Tambopata, *Vargas* 18577 (GH); Tambopata, vic of Moho towards Piedra Redonda, at the Bolivian frontier, 12°30'S, 69°40'W, *Núñez et al.* 9695 (GH, NY); Tambopata, SSW of Pto. Maldonado at the confluence of the R. La Torre and the R. Tambopata (SE bank), Tambopata Nature Reserve, 12°49'S, 69°17'W, *Barbour* 4763 (NY), *López* 4585 (GH).

BOLIVIA: **Beni:** Pcia. Ballivian: Río Colorado, Colegio Técnico Agropecuario de Río Colorado, 15°00'S, 67°10'W, *Fay & Fay* 2105, 2640, 2652, 2654, 2681 (all US); 18.4 Km E of Riberalta, then 1 km NE on old road to Cachuela Esperanza, 11°05'S, 65°50'W, *Solomon* 7804 (NY); Isla Capanario, 50 m from the San Borja–San Ignacio de Moxos road, 212 km from Campoamento Totai-zal, *Rolleri* 140 (NY); Pcia. Moxos: Chimanes Forest, 15°10'S, 66°37'W, *Fay & Fay* 2794 (US). **Sta. Cruz:** Bella Vista, Río Blanco, *Scolnik & Luti* 681 (US); Pcia. Ichilo: Old meander loop of the Río Ichilo, 1–1.5 km SW of the Buena Vista–Villa Tunari Hwy., 17°18'S, 64°12'W, *Nee & Moran* 45225 (NY). **Pando:** Nicolas Suarez, SW of Cobija on the Río Naraüeda, 11°08'S, 69°08'W, *Sperling*

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FIG. 2. *Adiantum argutum* Splitg. Fig. 2A. Habit. Fig. 2B. Abaxial surface of some pinnules. Fig. 2C. Abaxial surface of a pinnule showing the scales.

& King 6475 (GH, NY, UEC); Ca. 20 km from Cobija towards Castro Eriña, *Casas & Sussana* 8123 (NY); W bank of the R. Madeira betw Cachoeiras Madeira and Misericórdia, *Prance et al.* 6612 (NY). **La Paz:** Pcia. Iturralde, Siete Cielos, R. Manupare, 12°27'S, 67°37'W, *Solomon* 16947 (NY).

BRAZIL: **Amapá:** Serra do Navio, bank of the Rio Amapari, *Emmerich & Andrade* 745 (HB, R). **Roraima:** Posto Mucajaí, Rio Mucajaí, vic of Mucajaí airstrip, *Prance et al.* 10991 (GH, R, UC). **Pará:** Lageira, airstrip on Rio Maicurú, 0°55'S, 54°26'W, *Strudwick et al.* 3088 (NY), 3129 (MG, NY, US), 3580 (US); Curuá S.A., near Alenquer, Santarém, *Piggott* 2547 (K, NY); Breu Branco, ca. 40 km S of Tucuruí, 4°03'S, 49°40'W, *Daly et al.* 1376 (GH, MO, NY, US); Serra dos Carajás, Serra Norte, ca. 15 km W of AMZA Exploration Camp., 6°S, 50°15'W, *Berg & Henderson* BG472 (GH, NY, UC, UEC, US); Serra dos Carajás, 6°4'S, 50°8'W, *Secco* 286 (GH, K, MG, NY, SPF); BR-163, Cuiabá–Santarém Highway, km 885.5, *Prance et al.* P25171 (MG, NY, UC, US); Parque Indígena do Tumucumaque, Rio Parú de Oeste, Missão Tiriyo, 2°20'N, 55°45'W, *Cavalcante* 2401 (K, MG, NY, US); Conceição do Araguaia range of low hills ca. 20 km W of Redenção, near São João and Troncamento Santa Teresa, 8°03'S, 50°10'W, *Plowman et al.* 8635 (GH, NY), 8757 (GH, NY, US); Rio Xingu, *Balée* 2398 (NY); Confluência com Rio Pardo, *Vasconcelos et al.* 260a (NY); Rio Itacaiunas, affluent of the Rio Tocantins, Serra Buritirama, 50°15'W, 5°30'S, *Pires* 12427 (NY); Rio Cuminá, *Ducke (Hb. Mus. Goeldi 8885, 15163)* (both HB, MG). **Amazonas:** 1–5 km road Boca do Acre to Rio Branco, *Prance et al.* 2533 (GH, MG, NY, R, US); Vic. of Tototobí, Basin of the Rio Demeni, *Prance et al.* 10208 (NY, UC, US); Rio Curuquete, Providencia, *Prance et al.* 14632 (NY, UC); São Paulo de Olivença, 30 km above the mouth of the Rio Coti, *Prance et al.* 14444 (B, NY); Vic. of Macujaí airstrip, *Prance et al.* 10991 (MG, NY, UC); Borba, 4°02'S, 59°06'W, W side of the Rio Cunamã, *Hill et al.* 12868 (MO, NY). **Rondônia:** Mineração Campo Novo, BR-421, a 2 km a Oeste da Mineração Campo Novo, 10°35'5"S, 63°37'W, *Vieira et al.* 517 (NY, US); Basin of Rio Madeira, Trail north of Rio Madeira from 2 km, below confluence of Rio Abunã, *Prance et al.* 8345 (K, NY, UC, US). **Acre:** Palácio de Castro, fazenda Mococa, ramal no km 120 da rod. Rio Branco–Pôrto Velho, *Santos et al.* 122 (MG, NY, US); 9 km from Rio Branco on Rio Branco–Pôrto Acre road at cut-off for Colônia Cinco Mil, *Lowrie et al.* 650 (MG, NY, R, US); Sena Madureira, Bacia do Rio Purus, variação para o Seringal Fonte Boa, 10°07'S, 69°13'W, *Silveira et al.* 668 (MO, NY); Xapuri, Seringal Cachoeira, 35 km SE of Xapuri, *Pinard* 809 (NY), *Kainer* 126 (NY). **Mato Grosso:** Colider, Comunidade São Francisco, *Salino* 284 (GH); Serra Ricardo Franco, 15°S, 60°W, *Windisch* 1503 (HRCB); Rio Peixoto de Azevedo, Faz. São José (Cachimbo), *Bokermann* 6747 (UEC); Santa Terezinha, BR-158, Vila Confresa, pr. ao aeroporto da Fazenda Confesa, 10°35'S, 5°35'W, *Windisch* 5987 (UC).

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